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AUTHOR Schoenenberger, William J.; Tompkins, John F.
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ABSTRACT

During the 1979-80 school year, the Des Moines Title I math program served over 1300 students in grades 1-8. Overall, the program met its objectives. The average percentile rank of students in grades 2-8 improved from fall to spring. Also, except for grades 4 and 7, gains exceeded the established criteria. Junior high school students' attitude toward learning became more positive over the year and for the first time junior high Title I students equalled or bettered non-Title I attendance rates. Motivation for the increased attendance rate may have been provided by the successful completion of student contracts. The instructional staff was successful in making home visits and personal contacts with parents during the first semester but not during the second semester. And finally, a random sample of parents indicated favorable attitudes toward the Title I program, although a need was found for improved communication between staff and parents on the selection of students and the purpose of the parent advisory council. (CMG)

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REPORT OF EVALUATION
TITLE I MATHEMATICS PROGRAM
1979-80

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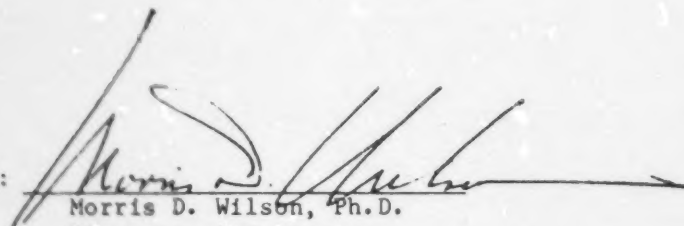
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Department of Evaluation
Des Moines Independent Community School District
1800 Grand Avenue
Des Moines, Iowa 50307

William J. Schoeneberger
Title I Program Evaluator

John F. Tompkins
Title I Evaluation Assistant

Approved:


Morris D. Wilson, Ph.D.
Director of Evaluation

August 28, 1980

UD023 310

DES MOINES INDEPENDENT COMMUNITY SCHOOL DISTRICT
DEPARTMENT OF EVALUATION
EVALUATION ABSTRACT

August 28, 1980

PROJECT TITLE: Title I Mathematics Program
Kathleen Bullington, Elementary Coordinator
Wanda Everage, Secondary Coordinator

STAFF: 1.25 - Coordinators
29.25 - Resource Teachers
2.00 - Educational Aide
1.25 - Secretary

OPERATIONAL SITES: ELEMENTARY SCHOOLS: All Saints, Brooks, Casady,
Dunlap, Edmunds, Findley, Garton, Jefferson, King,
Kingsway Academy, Longfellow, Lucas, Madison,
Monroe, Moulton, Oak Park, Perkins, St. Anthony,
St. John's, St. Peter's, Visitation, Wallace
JUNIOR HIGH SCHOOLS: Callanan, Harding, Hiatt

VOLUNTARY TRANSFER
PROGRAM SITES: Moore

POPULATION SERVED: 1235 Public school students (1-8)
109 Nonpublic school students (1-8)
1344 Total students (1-8)

FUNDING: Source: Title I, Elementary and Secondary Education Act
Amount budgeted: \$625,213
Amount expended: 602,442
Cost per pupil: 448

SUMMARY:

The purpose of the Title I Mathematics program is to provide a compensatory mathematics program to all students who qualify under the guidelines of Title I of the Elementary and Secondary Educational Act of 1965. During the 1979-80 school year the Title I Mathematics staff identified and provided services to over 1300 students in the Des Moines public and private schools at an approximate cost of \$598,000.

Evidence that the Title I program had an impact on academic achievement of the program students (grades 2-8) was provided by the improvement in average percentile rank from fall to spring. Also, the magnitude of the achievement gains were greater than the goal as established by the Title I staff except for the fourth grade.

The secondary students indicated a more positive attitude toward learning at the end of the school year on an attitude instrument. Also, for the first time the secondary Title I students had a better attendance rate (or at least an equal attendance rate) than non-Title I students. Motivation for the increased attendance rate may have been provided by the successful completion of student contracts.

The instructional staff was successful in making home visits and personal contacts with parents the first semester; however, the performance of teachers at two junior high schools prevented the achievement of this objective second semester.

A random sample of parents indicated a favorable attitude towards the Title I program. However, the Title I staff needs to improve the communication between the staff and parents on the selection of students and the purpose of the parent advisory council.

The Title I Mathematics proved to be an effective program that improved student achievement. However, there were areas of the program where student and teacher performance did not meet the criteria established by the Title I staff. The objectives that were not achieved provide direction to the Title I staff where the program procedures and/or goals need to be reviewed.

RECOMMENDATIONS:

The Department of Evaluation recommends that the Title I staff:

1. Review the student performance objectives for achievement and use test results from the 1978-79 and 1979-80 school years to establish criteria for the 1980-81 school year.
2. Increase the criteria for objective III C 4 (student contingency contracts) so that either more contracts are required, a higher percentage of students complete the required number of contracts, or both.
3. Investigate the reasons as to why the staff at Harding and Callanan Junior High Schools are not able to make the necessary number of home visits or personal contacts during the second semester.
4. Review the results of the parent questionnaire and determine what is needed to improve communication between the parents and staff about student selection and the parent advisory councils.

PROGRAM DESCRIPTION

Title I of the Elementary and Secondary Education Act (ESEA) of 1965 provides financial assistance to local education agencies for programs to meet the special educational needs of educationally deprived children. Children are eligible for the program if they come from areas with high concentrations of low income families and their academic performance is below acceptable levels.

The Des Moines district, utilizing Title I funds, initiated a supplementary reading program during the 1965-66 school year and a supplementary mathematics program during the 1972-73 school year. The impetus for the programs was that there were a significant number of students performing below desired levels on the Iowa Test of Basic Skills tests.

At the beginning of the 1979-80 school year, the district employed a full time equivalent, staff of 29.25 teachers, 2 associates, and 1.25 coordinators to provide Title I mathematics services for grades 1-8. Midway into the year, three teachers were added to expand mathematics services into three elementary schools (Mitchell, Phillips, Willard) that had reading, but not mathematics programs. The program was located in 21 public elementary schools, three junior high schools and four non-public schools. Grades served in individual buildings varied according to available space and the organization of the school.

Some students resided in Title I identified attendance areas and participated in the district's Voluntary Transfer Program (VTP). In order that these students not be deprived of Title I services, the mathematics program was extended to Moore Elementary School. The teacher assigned to this building was funded from Title I and district funds. The dual funding allowed the teacher to serve both VTP students and neighborhood students to prevent a resegregation of the VTP students. Voluntary Transfer

students needing Title I services attending other non-Title I schools were served by the ESAA Title VII program.

Student Selection

Schools were identified for the Title I services by the percentage of students from low income families. Priorities for funding were given to schools with the highest percentage of low income students. Estimates of low income were based on the percentage of students eligible for free and reduced lunches. Once a school was identified for Title I services, student eligibility was based on academic need.

Students were selected under a two phase process. First, students were identified according to their performance on the district's objective based mathematics tests. Students with the lowest scores were selected first until the scores reached a predetermined criteria or the space allocation for the teacher was filled. Secondly, the classroom teacher may have recommended that a student needed additional help. If the student scored above the criteria used for the initial screening, the Key Math test was administered to determine the students achievement level. This test was also used to determine which students scoring at or near the criteria used in the first phase of screening were in greatest need.

Title I regulations stipulate conditions under which students could not be served. These conditions for not selecting students eligible for other programs (learning, emotional, or mental disabilities) are listed in the Needs Assessment Checklist. Additionally, priorities were established by grade level. Students in the elementary program were selected according to the following order: 2-3-4-1-5-6. In the secondary program, the grade order was 7-8.

Major Methods and Activities in the Instructional Program

The basic philosophy underlying the project was that Title I students are capable of learning. The Title I staff was responsible for assessing each student's weaknesses and providing remediation instruction in those areas. Weaknesses (and strengths) were identified from the districts mathematics objective based tests, which are based on the district's mathematics objectives for grades K-8. Each student had an educational plan that was used to guide the students instruction and to provide a continuous record of concepts introduced to and mastered by the student. The educational plan stayed with the student throughout his or her involvement in the Title I Mathematics programs.

The primary method of instruction used manipulative devices (blocks, beads, coins, etc.) to develop concepts. As the students recorded the results of their experiments with the manipulatives, they discovered arithmetical algorithms. Games and other activities were used to reinforce the learned concepts.

Organization for Instruction

Title I Mathematics teachers worked daily with the identified Title I students for approximately one-half of the student's regularly scheduled mathematics class. The actual amount of time the Title I teachers instructed each group ranged from 15 minutes to 45 minutes, depending upon grade level and building. In some cases, Title I teachers met with students for the entire math period on an alternating day basis. In schools where scheduling permitted, small group instruction was carried out by the Title I teachers in the learner's classroom, however, in most schools children were served outside of the classroom.

The maximum number of students served by a teacher at the elementary level was 40 with a student/teacher ratio ranging from 1:1 for a student

requiring special help to a 6:1 ratio for students with similar needs. The average student/teacher ratio was 5:1 per session of instruction. At Moulton Elementary School students received the usual Title I services in a mathematics laboratory setting. At the secondary level the student/teacher ratio ranged from 3:1 to 8:1 with an average ratio of 6:1.

Parent Contact and Participation

Title I regulations require that parent advisory councils be formed at buildings with two or more full time equivalent Title I staff persons. The councils membership consists of parents of Title I children, teachers (Title I and classroom), and other individuals in the community. All members of the council are elected. The council provides a mechanism to disseminate copies of the Title I regulations, program proposals, program evaluations, and information about the program learning strategies. The councils also provide a means for parents to make comments and suggestions about the Title I program.

Parents were also involved by the Title I staff through personal contacts. The program teachers visited homes, wrote letters and made telephone calls so that parents were aware of the Title I program and learned how well their children were doing in the program.

BUDGET AND EXPENDITURES

Figure I lists the budgeted and expended amounts as of July 23, 1980, for the Title I Mathematics project for the fiscal year 1980. The figures are summarized from data provided by the Title I Office (see Appendix A).

Figure I
Title I Mathematics Project
Budget and Expenditures

	Budget	Expenditures
Administration		
Professional Salaries	\$ 15,039	\$ 15,039
Classified Salaries	5,163	5,163
Parent Advisory	525	488
Other (travel, printing, etc.)	2,137	1,732
Instructional		
Elementary		
Professional Salaries	413,655	392,655
Classified Personnel	6,739	6,739
Substitutes	4,000	5,203
Other (telephone, mileage, supplies, etc.)	11,410	10,204
Secondary		
Professional Salaries	43,498	43,498
Classified Personnel	10,785	10,785
Community Resources	2,500	1,899
Substitutes	1,800	1,575
Other (telephone, mileage, supplies, etc.)	3,596	3,096
Evaluation		
Professional Salaries	6,117	6,117
Other (data processing, printing, supplies, etc.)	4,318	4,318
Additional Costs		
Social Worker - Non Public	7,280	7,280
Fixed Charges (Social Security, retirement, etc.)	72,295	72,295
Indirect Costs (administrative support charges)	14,356	14,356
TOTALS	\$625,213	\$602,442

RESULTS OF EVALUATION

The evaluation of the Title I Mathematics program was based on performance (learning) and process (activity) objectives selected from the project proposal submitted to the Department of Public Instruction. The remaining objectives (see Appendix B) were monitored by the Title I project coordinators.

An accountability file was prepared for the project in order to facilitate the collection and storage of supportive data for each objective. A "suspense" file was used to monitor the submission and receipt of such data and monthly verification of receipts was made. The data collection system provided the project management with formative evaluation information throughout the school year.

Principal Performance Objective

- II B 1. By November 28, 1980, the principal of each elementary school served by the project shall monitor the joint activities of the project teachers and classroom teachers. He/she will visit classrooms to assure that Title I students are receiving direct instruction in mathematics from the classroom teacher as well as from the Title I teacher.

Documentation: Report of supervision of the Title I program submitted by December 5, 1980, to the Executive Director of Elementary Education (public) or the Superintendent of Des Moines Diocese (non-public) via the Elementary Title I mathematics coordinator.

The public elementary principals submitted forms to the Education Department and the parochial principals made their submittal to the Department of Evaluation through the Title I Mathematics coordinator. The form lists the name of the classroom teacher (with Title I students) and the time and date of the observation(s). Forms from all schools except Wallace and Lucas Elementary Schools were submitted by the deadline. Followup requests produced the form from Wallace Elementary School.

Student Performance Objectives

- III A 1. At the end of the instruction year, Title I students (grades 2-8) enrolled in the mathematics program for a minimum of four months will demonstrate an increase in the mean percentile rank from pre to posttest on the mathematics test of the Metropolitan Achievement Survey Battery, 1978.

Documentation: Metropolitan Achievement Test scores submitted to the Director of Evaluation at the end of the project year.

To assess the impact of an educational program on student achievement two measures are needed: the observed achievement performance and the expected achievement performance. If the actual achievement is greater than the expected achievement, then there has been an achievement "gain" that is greater than expected. It is then assumed that the educational program had a positive impact on student achievement.

The observed student performance for Title I Mathematics students was the mean posttest score on the Metropolitan Achievement Mathematics Test converted to a nationally normed percentile rank. The expected student performance was the mean pretest score on the same test converted to a nationally normed percentile rank. The assumption was that without an intervention program (such as Title I) the ranking of the Title I students relative to a national norm would not appreciably change from fall (pretest) to spring (posttest). Any change in ranking was interpreted to mean that the program had a positive effect on student achievement.

As can be seen from Table 1 there was an increase in percentile rank from fall to spring at all levels. The increase indicated that the students had a higher achievement "gain" than expected. The objective was achieved.

In Appendix C the pre and posttest percentile ranks for each school are listed. Caution must be used when comparing "gains." An increase

from the 20th to the 24th percentile rank does not mean the same as an increase from the 10th to the 14th percentile rank despite the differences being the same. The significance of any change in percentile ranks is that a change exists. The magnitude of the change is measured by scales other than percentile ranks.

TABLE 1
Mathematics Survey Test
Pre and Post Percentile Ranks

Grade	N ^a	Pre	Post	Change
2	197	18	44	+26
3	178	18	38	+20
4	179	22	30	+ 8
5	132	22	38	+16
6	130	20	36	+16
7	57	22	30	+ 8
8	41	16	28	+12

^aThe number of students represents students with both pre and posttests.

III A 2. At the end of the instruction year, first grade students enrolled in the mathematics program at least four months will attain scores on the mathematics test of the Metropolitan Achievement Survey Battery such that:

- (a) No more than 20% of the students will achieve a percentile rank of less than 22
- (b) At least 25% of the students will achieve a percentile rank of 55 or greater
- (c) The average raw score will be equivalent to at least the 40th percentile.

Documentation: Metropolitan Achievement Test scores submitted to the Director of Evaluation at the end of the project year.

Pretest scores were not collected at the first grade level, thus an estimation of expected performance was not possible. However, the test results from the 1978-79 school year provided a basis for comparison.

Part a of this objective was achieved as no more than 20% of the 105 first grade students tested scored below the 22nd percentile rank. However, parts b and c were not achieved as only 23.8% of the students scored at the 55th percentile rank or higher while the overall average score was equivalent to the 38th percentile rank.

Failure to achieve the objective indicated that the 1979-80 first grade students performed at lower levels than the 1978-79 first grade students. It is recommended that the Title I staff review the criteria for this objective and use the 1978-79 and 1979-80 test results to set criteria for the 1980-81 school year.

III A 3. At the end of the instruction year students (grades 2-6) enrolled in the mathematics program for at least four months will demonstrate a proficiency on the mathematics test of the Metropolitan Achievement Survey Battery such that:

- (a) No more than 25% of the students will show an NCE (Normal Curve Equivalent) change of less than 1
- (b) At least 45% will show an NCE gain of at least 10.0 NCEs or more
- (c) The average gain by grade in NCEs will be at least seven.

Documentation: Metropolitan Achievement Test scores submitted to the Director of Evaluation.

Normal Curve Equivalents (NCEs) is one of several measurement scales used in testing to measure student achievement. The advantage of NCEs is that the scale has the same end and mid points as the percentile rank scale (1, 99, 50 respectively) yet has arithmetic properties. This means that the difference between 20 and 24 NCEs has the same meaning as a difference between 10 and 14 NCEs.

Table 2 shows the results of the 1979-80 testing. As can be seen, the three parts of the objective were achieved by all grade levels with the exception of fourth grade. The percentage of students who did not have

a gain of at least 1 NCE was higher than the set criterion. Also, the average NCE gain for that grade was less than seven. When compared to the other grades the fourth grade had fewer students with gains of 10 or more NCEs and had a lower average gain.

TABLE 2
Percent of Students Showing
NCE Gains (Grades 2-6)
Mathematics Survey Battery
Metropolitan Achievement Test

Grade	N	NCE Diff ≥ 10 (%)	NCE Diff ≤ 1 (%)	Average NCE Diff
2	197	64.5	15.2	16.1
3	178	60.1	12.9	12.9
4	180	45.6	31.3	5.3
5	132	52.3	21.2	9.9
6	130	50.8	18.5	10.2

III A 4. At the end of the instruction year students (grades 7-8) enrolled in the mathematics program for at least four months will demonstrate a proficiency on the mathematics test of the Metropolitan Achievement Survey Battery such that:

- (a) No more than 25% of the students will show a NCE change of less than 1
- (b) At least 40% will show a NCE gain of 10.0 or more
- (c) The average gain by grade in NCEs will be at least seven.

Documentation: Metropolitan Achievement Test scores submitted to the Director of Evaluation.

Table 3 shows that the eighth grade achieved the entire objective while the seventh grade failed to meet any of the three criteria. From the data it appears that almost 37% of the seventh grade students failed to show an NCE gain of at least one.

TABLE 3
Percent of Students Showing
NCE Gains (Grades 7-8)
Mathematics Survey Battery
Metropolitan Achievement Test

Grade	N ^a	NCE Diff ≥ 10 (%)	NCE Diff ≤ 1 (%)	NCE Diff
7	57	31.6	36.8	5.3
8	41	48.8	24.4	8.6

^aThe number of students represents the students with both pre and posttest scores.

III A 5. At the end of the instruction year, students (grades 2-8) enrolled in the mathematics program for at least four months will achieve an average raw score equivalent to at least the 30th percentile.

Documentation: Metropolitan Achievement Test scores submitted to the Director of Evaluation at the end of the project year.

The purpose of this objective was to provide end-of-the-year goals for achievement. This type of goal complements the objectives that specify criteria for gains. The criterion for this objective was based on the performance of the 1978-79 students and it is also near the lower boundry of what is considered by the publishers of the Metropolitan Achievement Test to be the average range for percentile ranks (23rd percentile to the 76th percentile).

As can be seen from Table 1, the eighth grade was the only grade failing to achieve the objective. However, the eighth grade showed the necessary gains in NCEs required for objective II A 4. From Table 1 one can see that on the pretest the seventh grade students' had an average score at the 22nd percentile while the eighth grade students' average score was at the 16th. Using NCEs to compare the gains made by the two grades (see Table 2) the eighth grade improved more than the seventh grade students. However, the seventh grade students on the average had higher

percentile ranks at the end of the year than the eighth grade. These results indicate that it is important to look at both types of data before strengths and weaknesses of a program can be identified.

Cluster Analysis For Grades 4-8

The items used in standardized tests (such as the Metropolitan Achievement Mathematics Test) are based on learning objectives. In turn these objectives are grouped into clusters that describe some component of mathematical skills. The Metropolitan Achievement Mathematics Tests group test items into the following clusters:

- (a) Numeration
- (b) Geometry and Measurement
- (c) Problem Solving
- (d) Operations: The Whole Numbers
- (e) Operations: Laws and Properties
(Laws of addition, commutative if property, etc.)
- (f) Operation with Decimals and Fractions
(grades 5-8)
- (g) Graphs and Statistics
(grades 5-8)

By analysing student performance in each cluster more is known about the strengths and weaknesses of the students in the program.

As can be seen from Table 4 there was improvement in the average number of correct items from pre to posttest for each of the clusters. The Title I staff will have to determine in what areas weaknesses occur by reviewing the objectives of the Metropolitan Achievement Test with the mathematics objectives used in the Title I program.

TABLE 4
Pre and Posttest Average Number of Items
Correct by Clusters
Grades 4-8

Cluster	# of Items	4th		# of Items	5th		# of Items	6th		# of Items	7th		# of Items	8th	
		Pre	Post		Pre	Post		Pre	Post		Pre	Post		Pre	Post
Numeration	10	5.1	6.3	9	3.2	4.7	9	4.4	5.5	8	2.7	3.2	8	3.0	3.6
Geometry and Measurement	13	6.0	7.5	9	2.0	2.6	9	2.3	2.8	8	2.1	2.5	8	2.2	2.9
Problem Solving	10	4.2	5.7	8	3.2	4.2	8	3.8	4.9	6	2.6	3.4	6	3.0	3.4
Operations: Whole Numbers	11	4.6	8.1	13	4.3	8.0	13	6.1	9.1	8	4.2	5.4	8	4.7	5.7
Operations: Laws and Properties	6	2.5	3.5	3	1.2	1.4	3	1.5	1.6	3	1.2	1.6	3	1.3	2.0
Operations: Fractions and Decimals	-	-	-	5	0.9	1.9	5	1.2	2.6	10	2.3	3.4	10	2.8	3.8
Graphs and Statistics	-	-	-	3	1.0	1.2	3	1.0	1.1	6	2.7	3.2	6	2.8	3.6

Note: Pre and post values are the average number of items correct.

- III A 6. Students (grades 1-8) enrolled in the program a minimum of four months will exhibit knowledge of mathematics concepts and computation by the mastering of 80% of the objectives presented to them.

Documentation: A completed Student Record Folder for each student served on file in each building and a summary for each student submitted to the project coordinators and the Department of Evaluation at the end of each semester.

The Title I Mathematics teacher, using objectives based tests, determined each child's area of deficiency in mathematics. Also, the Title I teacher discussed with the classroom teacher the topics taught in the classroom before planning each child's daily activities. This facilitated a coordinated effort between the classroom teacher and the Title I teacher in providing a supplementary type of instruction.

Table 5 shows the average number of objectives introduced by the Title I teacher and the percentage passed by the Title I students. The number of objectives introduced varied from student to student and grade to grade due to the Title I goal of meeting individual needs of students. The objective was achieved.

TABLE 5
Composite Data

Grade	N of Students	Average Number of Objectives Per Pupil	Percent Attained
1	109	40	81
2	222	51	84
3	196	60	85
4	178	60	83
5	142	51	80
6	141	56	82
7	87	25	80
8	45	28	83
1-8	1120	51	83

- III A 7. By the end of the project year, public school students (grades 7-8) enrolled in the program for a minimum of four months will display a more positive attitude toward learning than they displayed at the time of their entrance into the program.

Documentation: Pre and post attitude toward learning inventory submitted to the Director of Evaluation at the end of the project year.

Table 6 shows the results of the pre and post administration of the Self-Anchoring Attitude Toward Learning Scale (see Appendix D for a description and copy of the scale) developed by the staff of the Heartland Education Agency. The instrument was designed so that each respondent established endpoints on the attitude scale that were unique to that individual. The aggregate gain was positive for all of the students. Despite the small magnitude of this gain the objective is considered to have been achieved.

TABLE 6
Attitude Toward Learning
Inventory Results

School	N	Pre	Post	Gain
Callanan	37	6.70	7.22	+0.52
Harding	22	7.14	7.23	+0.09
Hiatt	22	6.68	7.32	+0.64
Total	81	6.81	7.25	+0.44

- III A 8. During the project year, public school students (grades 7-8) enrolled in the program for a minimum of four months will respond positively to the program as indicated by their rate of attendance being equal to or nearer than that of all students in the same schools.

Documentation: Semester Summary Report submitted with the May accountability data to the Secondary Coordinator and Director of Evaluation.

Table 7 shows the average daily school attendance for Title I students and the average daily attendance of non-Title I students. With the

exception of Harding Junior High School, the objective was achieved. This is the first year that the Title I Mathematics students achieved this objective. The staff should be commended for this achievement.

TABLE 7
Attendance Results
Title I Secondary Students

School	Title I Students		All Students (Excl. Title I)	
	N	Attendance Percent	N	Attendance Percent
Callanan	39	92.5	463	91.5
Harding	40	89.0	560	90.0
Hiatt	45	90.6	580	90.6
All Schools	124	90.7	1603	90.6

III A 9. At the end of the project year, 50% of public school students (grades 7-8) enrolled in the program a minimum of four months will have written with the staff and completed at least two contingency contracts relating to math assignments and/or behavioral changes.

Documentation: List of students with the number and kinds of contracts completed, submitted to the Secondary Coordinator and Director of Evaluation at the end of the project year.

Most of the contingency contracts required the students to finish assignments, improve marks (grades) in other subject areas, reduce absences and tardiness, complete extra assignments, etc. Rewards for successfully completing the assignments or the contracts were pizza parties, picnics, field trips, etc.

All of the students at Callanan and Harding Junior High Schools completed at least two contracts. About 81% of the Hiatt students completed at least two contracts, while the average for these schools was 92.1%. The objective was achieved.

It is recommended that the Title I staff increase either the number of individual contracts required, the percentage of students required to

complete the required number of contracts, or both, as the criteria that is currently used may not be providing enough challenge to the staff or the students.

Summary of Student Performance Objectives

The Title I students (grades 2-8) had achievement gains greater than expected at the end of the 1979-80 school year. This indicated that the Title I Mathematics program had a positive impact on the Title I student achievement. The magnitude of the achievement gains were greater than the established criteria expect for the fourth and seventh grades. The students also achieved the end-of-the-year goals of having an average score of at least the 30th percentile. This implies that approximately 50% of the students scored at about the 50% percentile. This gives added indication that the Title I program was successful in improving student achievement as these students were chosen for the program due to their being below average or performing below district level in mathematics.

The first grade students came very close to achieving the established criteria. However, the criteria for the 1980-81 school year should be based on the results of the 1978-79 and 1979-80 school year.

The secondary students indicated a positive attitude toward learning on the Self-Anchoring Attitude Toward Learning Scale. They also demonstrated a positive attitude towards school by having an average daily attendance equal to or exceeding the non-Title I students' rate. This is the first year that this objective has been achieved.

The Title I students did have achievement gains greater than expected when compared to a national norm sample. In general, the magnitude of the achievement gains were at least as great as the goals established by the Title I staff. The first grade students did not quite achieve their objective but they were very close.

Instructional Staff

- IV A 1. The project teacher(s) in each building served by the program will identify eligible student participants by September 14, 1979.

Documentation: Class lists of identified students and the needs assessment check list submitted to the project coordinator with the September accountability data.

The student selection process is described in the Project Description section of this report. Documentation on hand indicated that the Title I student selection took place by the desired date. The objective was considered to be achieved.

Table 8 shows the number of students identified prior to September 24, 1979. Students identified after this date are not included.

TABLE 8
Number of Students Selected
Grade Level

School	1	2	3	4	5	6	7	8	Total
All Saints	1	5	6	6	6	2			26
Brooks	10	17	13	17	7	16			80
Casady	10	14	17						41
Dunlap	5	12	7	8	4	3			39
Edmunds				20	30	30			80
Findley	3	8	8	9	6	5			39
Garton	6	16	18	24	8	8			80
Jefferson	15	27	16						58
King	8	28	24						60
Longfellow	9	12	8	6	2	3			40
Lucas	6	11	7	6	5	5			40
Madison	-	9	11	8	8	4			40
McKinley	-	6	8	2	2	2			20
Monroe				18	13	9			40
Moore	2	2	2	2	-	3			11
Moulton	15	31	19	15	20	21			121
Oak Park	5	7	6	9	7	5			39
Perkins				27	19	14			60
St. Anthony	-	4	5	4	5	1			19
St. John	5	4	4	9	5	5	4	4	40
Visitation	3	4	3	3	3	3	1		20
Wallace	8	6	13	4	4	5			40
Callanan							23	17	40
Harding							24	12	36
Hiatt							21	17	38
Total	111	223	195	197	154	144	73	50	1147

- IV A 4. By the end of the first semester, project teachers will have personal contact with parents of at least 75% of the total number of students enrolled in the program for a minimum of 20 days. The parents of 65% of the total number of students served for 20 days will be visited in their homes.

Documentation: Parent contact report on the semester summary submitted to the appropriate project coordinator, the building principal, and the Department of Evaluation with the January accountability data.

- IV A 5. By the end of the second semester each project teacher will have had a personal conference (at home, school, or by telephone) with the parent(s) of at least 75% of the total number of students who he/she has served during the second semester.

Documentation: Parent contact report on the semester summary submitted to the appropriate project coordinator, the building principal, and the Department of Evaluation with the May accountability data.

Table 9 shows the percentage of home visits and personal contacts that the Title I Mathematics teacher made with parents of Title I Mathematic students. As can be seen the secondary teachers did not make the required home visits first semester and the required number of personal contacts second semester. Overall, the objective for first semester was achieved while the second semester objective was not. Data indicates that Harding and Callanan Junior High Schools were below the criterion (personal contacts with 15.0 and 40.5% of the students' parents respectively) while Hiatt Junior High School, St. John's and Visitation Schools achieved the objective. It is recommended that the Secondary Title I Coordinator investigate the inadequate performance at Harding and Callanan Junior High Schools.

TABLE 9
Parent Contacts by Semester

	First Semester		Percent of Home Visits	Second Semester	
	Number of Students	Percent of Personal Contacts		Number of Students	Percent of Personal Contacts
Elementary	1088	85.5	69.2	1200	82.5
Secondary	147	75.5	60.5	130	50.8
Total	1235	84.3	68.5	1330	70.4

Family

VII B 1. Near the end of the project year a 10% random sample of parents of identified elementary students will respond positively to the project activities.

Documentation: A summary of responses obtained by the project coordinator on the parent opinionnaire.

Figure 2 shows the items and percentage of individuals marking each response. Overall, there was a favorable response by the parents to the items on the survey. Thus the objective was achieved.

The percentages of "No Opinions" for the Parent Council items indicated that the parents have no opinion or weren't knowledgeable enough to form an opinion about these items. Item II A is worth noticing. This may be an indication that many parents do not feel informed when their children are selected for the Title I program. It is recommended that the Title I staff review the results of the questionnaire to determine if there is a need for better communication between the parents and Title I staff about student selection and if more information on the parents advisory council is needed.

FIGURE 2
Parent Survey

	Yes	No	No Opinion	Number of Respondents
I. Parent/Teacher personal contact				
A. Home visits				
1. Home visits made by the Title I teacher gave me useful information about the Title I program.	63.6	9.1	27.3	22
2. Home visits made by the Title I teacher gave me useful information about my child.	59.1	9.1	31.8	22
3. Home visits provide an opportunity for my child's teacher and me to openly discuss the Title I program.	72.7	9.1	18.2	22
B. Conferences				
1. Scheduled school conferences with the Title I teacher are helpful to me.	90.0	0.0	10.0	20
2. Title I sponsored activities at the school have improved communication between home and the school.	54.5	9.1	36.4	22
3. Telephone calls and letters received from Title I teachers gave me information about my child's progress.	65.0	5.0	30.0	20
II. Information				
A. Title I was explained to my satisfaction when my child was selected to be in the program.	68.2	27.3	4.5	22
B. I received the Title I brochure and/or newsletters.	81.0	19.0	0.0	21
C. The Title I brochure provides information about how the Title I program operates.	60.0	10.0	30.0	20
D. The newsletter Close Up On Learning provides information about Title I activities at the different schools.	60.0	0.0	40.0	20
III. Parent Council				
A. The school advisory council(s) provide an opportunity for members and community persons to receive important information about the rules and regulations concerning Title I.	23.8	9.5	66.7	21
B. The school advisory council(s) organizations provide the opportunity for members to express their concerns about the Title I program(s).	23.8	4.8	71.4	21

SUMMARY AND RECOMMENDATIONS

Summary

The purpose of the Title I Mathematics program is to provide a compensatory mathematics program to all students who qualify under the guidelines of Title I of the Elementary and Secondary Educational Act of 1965. During the 1979-80 school year the Title I Mathematics staff identified and provided services to over 1300 students in the Des Moines public and private schools at an approximate cost of \$598,000.

Evidence that the Title I program had an impact on academic achievement of the program students (grades 2-8) was provided by the improvement in average percentile rank from fall to spring. Also, the magnitude of the achievement gains were greater than the goal as established by the Title I staff except for the fourth grade.

The secondary students indicated a more positive attitude toward learning at the end of the school year on an attitude instrument. Also, for the first time, the secondary Title I students had a better attendance rate (or at least an equal attendance rate) than non-Title I students. Motivation for the increased attendance rate may have been provided by the successful completion of student contracts.

The instructional staff was successful in making home visits and personal contacts with parents the first semester; however, the performance of teachers at two junior high schools prevented the achievement of this objective second semester.

A random sample of parents indicated a favorable attitude towards the Title I program. However, the Title I staff needs to improve the communication between the staff and parents on the selection of students and the purpose of the parent advisory council.

The Title I Mathematics proved to be an effective program that improved student achievement. However, there were areas of the program where student and teacher performance did not meet the criteria established by the Title I staff. The objectives that were not achieved provide direction to the Title I staff where the program procedures and/or goals need to be reviewed.

Recommendations

The Department of Evaluation recommends that the title I staff:

1. Review the student performance objectives for achievement and use test results from the 1978-79 and 1979-80 school years to establish criteria for the 1980-81 school year.
2. Increase the criteria for objective III C 4 (student contingency contracts) so that either more contracts are required, a higher percentage of students complete the required number of contracts, or both.
3. Investigate the reasons as to why the staff at Harding and Callanan Junior High Schools are not able to make the necessary number of home visits or personal contacts during the second semester.
4. Review the results of the parent questionnaire and determine what is needed to improve communication between the parents and staff about student selection and the parent advisory councils.

A P P E N D I X A

Title I Mathematics Program
Budget Expenditures

TITLE I MATHEMATICS PROGRAM

BUDGET EXPENDITURES

	<u>Budgeted Amount</u>	<u>Expended Amount</u>
Instruction-Professional Salaries		
Elementary teachers & coordinator	413,655	392,655
Secondary teachers & coordinator	43,498	43,498
Instruction-classified salaries		
Elementary	6,739	6,739
Secondary	10,785	10,785
Instruction salaries-substitutes		
Elementary	4,000	5,203
Secondary	1,800	1,575
Telephone		
Elementary	730	677
Secondary	183	168
Mileage		
Elementary	980	448
Secondary	288	231
Professional meetings		
Elementary	2,700	2,299
Secondary	800	767
Materials & supplies		
Elementary	7,000	6,780
Secondary	1,425	1,404
Transportation-Taxi		
Secondary	900	526
Attendance Services		
Social Worker-non public-elementary	7,280	7,280
Community Resources		
Secondary	2,500	1,899
Indirect costs	14,356	14,356
Fixed Charges	72,295	72,295
General Administrative costs		
Admin. Professional salaries	15,039	15,039
Evaluation Professional salaries	6,117	6,117
Admin. classified salaries	5,163	5,163
Admin. Travel	750	753
Evaluation Travel	362	362
Admin. Printing	250	155
Admin. Dissemination	325	318

Title I Math
7-23-80

	<u>Budgeted Amount</u>	<u>Expended Amount</u>
Admin. Office Expense	812	506
Evaluation Materials and supplies	2,206	2,206
Admin. Parent Advisory Councils	525	488
Evaluation Data Processing	1,750	1,750
Total	625,213	602,482

A P P E N D I X B

Performance and Process Objectives

SECTION III -- PERFORMANCE AND PROCESS OBJECTIVES

1. Administration

Program Coordinators

1. The program coordinators will organize and maintain an accountability file and provide copies of all evaluation data to support the achievement of all project objectives.

Documentation: accountability files maintained in the project office

Elementary Principals

1. By November 28, 1980, the principal of each elementary school served by the project shall monitor the joint activities of the project teachers and classroom teachers. He/she will visit classrooms to assure that Title I students are receiving direct instruction in mathematics from the classroom teacher as well as from the Title I teacher.

Documentation: report of supervision of the Title I program submitted by December 5, 1980 to the Executive Director of Elementary Education (public) or the Superintendent Des Moines Diocese (nonpublic) via the Elementary Title I mathematics coordinator

2. Students

1. At the end of the instruction year, Title I students (grades 2-8) enrolled in the mathematics program for a minimum of four months will demonstrate an increase in the mean percentile rank from pre- to post-test on the mathematics test of the Metropolitan Achievement Survey Battery (1978).

Documentation: Metropolitan Achievement Test scores submitted to the Director of Evaluation at the end of the project year

2. At the end of the instruction year, first grade students enrolled in the mathematics program at least four months will attain scores on the mathematics test of the Metropolitan Achievement Survey Battery such that:

- (a) no more than 20% of the students will achieve a percentile rank of less than twenty-two;
- (b) at least 25% of the students will achieve a percentile rank of fifty-five or greater;
- (c) the average raw score will be equivalent to at least the fortieth percentile

Documentation: Metropolitan Achievement Test scores submitted to the Director of Evaluation at the end of the project year

3. At the end of the instruction year students (grades 2-6) enrolled in the mathematics program for at least four months will demonstrate a proficiency on the mathematics test of the Metropolitan Achievement Survey Battery such that:

- (a) no more than 25% of the students will show an NCE (Normal Curve Equivalent) change of less than 1.0;

- (b) the average gain by grade in NCEs will be at least 7.0

Documentation: Metropolitan Achievement Test scores submitted to the Director of Evaluation

4. At the end of the instruction year students (grades 7-8) enrolled in the mathematics program for at least four months will demonstrate a proficiency on the mathematics test of the Metropolitan Achievement Survey Battery such that:

- (a) no more than 25% of the students will show an NCE change of less than 1.0;

- (b) the average gain by grade in NCEs will be at least 7.0

Documentation: Metropolitan Achievement Test scores submitted to the Director of Evaluation

5. At the end of the instruction year, students (grades 2-8) enrolled in the mathematics program for at least four months will achieve an average raw score equivalent to at least the thirtieth percentile.

Documentation: Metropolitan Achievement Test scores submitted to the Director of Evaluation at the end of the project year

6. Students (grades 1-8) enrolled in the program a minimum of four months will exhibit knowledge of mathematics concepts and computation by mastering of 80% of the objectives presented to them.

Documentation: a completed Student Record Folder for each student served on file in each building and the Semester Summary Report submitted to the project coordinators at the end of each semester

7. By the end of the project year, public school students (grades 7-8) enrolled in the program for a minimum of four months will display a more positive attitude toward learning than they displayed at the time of their entrance into the program.

Documentation: pre- and post- attitude toward learning inventory submitted to the Director of Evaluation at the end of the project year

8. During the project year, public school students (grades 7-8) enrolled in the program for a minimum of four months will respond positively to the program as indicated by their rate of attendance being equal to or greater than that of all students in the same schools.

Documentation: Semester Summary Report submitted with the May accountability data to the Secondary Coordinator and Director of Evaluation

9. At the end of the project year, 50% of public school students (grades 7-8) enrolled in the program a minimum of four months will have written with the staff and completed at least two contingency contracts relating to math assignments and/or behavioral changes.

Documentation: list of students with the number and kinds of contracts completed, submitted to the Secondary Coordinator and Director of Evaluation at the end of the project year

3. Instructional Staff

Elementary and Secondary Title I teachers

1. The project teacher(s) in each building served by the program will identify eligible student participants by September 12, 1980.

Documentation: class lists of identified students and the needs assessment check list submitted to the project coordinator with the September accountability data

2. Project teachers will develop and maintain an Educational Plan for each Title I student receiving mathematics service.

Documentation: Educational Plans on file with each project teacher

3. Project teachers will instruct a maximum of 40 students. Students will receive a minimum of 100 minutes of instruction weekly, with the time being equal to at least half of the regular mathematics time for the particular grade level.

Documentation: mathematics schedule submitted to the appropriate coordinator by September 17, 1980 and resubmitted each time a schedule change is made

4. By the end of the first semester, project teachers will have personal contact with parents of at least 80% of the total number of students (grades 1-6) enrolled in the program for a minimum of 20 days. The parents of 65% of students new to the program will be visited in their homes.

Documentation: parent contact report on the semester summary submitted to the appropriate project coordinator, the building principal, and the Department of Evaluation with the January accountability data

5. By the end of the first semester, project teachers will have personal contact with parents of at least 65% of the total number of students (grades 7-8) enrolled in the program for a minimum of 20 days. The parents of 25% of students new to the program will be visited in their homes.

Documentation: parent contact report on the semester summary submitted to the appropriate project coordinator, the building principal, and the Department of Evaluation with the January accountability data

6. By the end of the second semester each project teacher will have had personal conference (at home, school, or by telephone) with the parent(s) of at least 80% of the total number (grades 1-8) of students whom he/she has served during the second semester.

Documentation: parent contact report on the semester summary report submitted to the appropriate project coordinator, the building principal, and the Department of Evaluation with the May accountability data

4. Social Worker

1. During the project year, the social worker (contracted from Diocese) will counsel with Title I students referred by non-public school staff.

Documentation: record of the number of counseling sessions listed on the social worker's monthly log, submitted to the Elementary Title I Mathematics Coordinator

2. During the project year, the social worker (contracted from Diocese) will counsel with the parents of Title I students concerning school-related problems.

Documentation: record of the number of contracts on the social worker's log, submitted monthly to the Elementary Title I Mathematics Coordinator

3. During the project year, the social worker (contracted from Diocese) will consult with non-public school staff to coordinate efforts in dealing with the referred students' problems.

Documentation: record of contacts on the social worker's monthly log, submitted to the Elementary Title I Mathematics Coordinator

5. Associates

1. During the project year, Title I associates working under the direction of the math teachers, will reinforce the teachers' instruction, prepare materials, and perform clerical duties.

Documentation: Monthly Summary of Associate Duties, signed by the Title I Math teacher, submitted to the program Coordinator with the monthly accountability data

6. Family

1. Near the end of the project year a 10% random sample of parents of identified elementary students will respond positively to the project activities.

Documentation: a summary of responses obtained by the project coordinator on the parent opinionaire

A P P E N D I X C

Mathematics Survey Test
Pre and Posttest Percentile Ranks by School and Grade

Metropolitan Survey Test
 Percentage Point Gains
 Grades 2-7

Metropolitan Achievement Test

School	Grade 2				Grade 3				Grade 4				Grade 5				Grade 6				Grade 7				Grade 8			
	N	Pre	Post	Gain	N	Pre	Post	Gain	N	Pre	Post	Gain	N	Pre	Post	Gain	N	Pre	Post	Gain	N	Pre	Post	Gain	N	Pre	Post	Gain
All Saints	4	30	78	48	6	38	56	18	6	46	76	30	6	38	52	14	1	14	50	36	-	-	-	-	-	-	-	-
Barnes	21	34	60	26	13	22	36	14	15	28	23	0	7	30	34	4	16	20	26	6	-	-	-	-	-	-	-	-
Canby	10	8	56	48	13	14	36	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chapman	11	14	46	32	9	28	38	10	7	34	40	6	3	18	48	30	3	10	23	13	-	-	-	-	-	-	-	-
Edwards	-	-	-	-	-	-	-	-	16	16	36	20	24	22	46	24	26	32	54	22	-	-	-	-	-	-	-	-
Finley	6	22	72	50	8	32	60	28	9	28	34	6	6	14	56	42	4	23	36	13	-	-	-	-	-	-	-	-
Gorton	15	14	44	30	17	14	44	30	23	24	44	-	8	18	24	6	8	16	30	14	-	-	-	-	-	-	-	-
Jefferson	24	22	60	38	15	16	44	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
King	24	11	16	5	18	14	26	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Longfellow	10	19	40	22	7	28	44	16	6	18	23	5	1	8	58	50	2	18	26	8	-	-	-	-	-	-	-	-
Lucas	10	34	44	10	6	11	14	3	5	20	20	0	5	18	24	6	5	30	44	14	-	-	-	-	-	-	-	-
Malcolm	7	18	32	14	11	20	32	12	8	34	44	10	9	14	68	54	1	16	40	24	-	-	-	-	-	-	-	-
McClary	5	6	24	18	7	11	44	33	2	6	14	8	1	14	68	54	1	16	40	24	-	-	-	-	-	-	-	-
Moore	-	-	-	-	-	-	-	-	17	22	30	8	14	22	38	16	8	16	30	14	-	-	-	-	-	-	-	-
Moore	2	30	24	-6	2	14	18	4	2	10	18	8	-	-	-	-	3	20	44	24	-	-	-	-	-	-	-	-
Moulton	26	18	36	18	15	16	38	22	12	22	26	4	12	18	32	14	17	20	34	14	-	-	-	-	-	-	-	-
Oak Park	7	38	36	-2	7	11	32	21	8	18	26	8	7	40	58	18	5	18	42	24	-	-	-	-	-	-	-	-
Perkins	-	-	-	-	-	-	-	-	24	18	20	2	14	16	16	0	12	20	30	10	-	-	-	-	-	-	-	-
St. Anthony	4	34	50	16	5	32	56	24	4	42	56	14	5	44	60	16	1	40	64	24	-	-	-	-	-	-	-	-
St. John	4	38	60	22	4	28	66	38	8	8	64	56	5	14	46	32	5	26	62	36	2	26	34	8	3	6	38	32
Visitation	3	18	16	0	3	16	26	10	3	12	28	16	2	16	20	4	3	26	40	14	1	8	6	-2	-	-	-	-
Wallace	4	18	40	22	12	16	28	12	4	40	34	-6	4	2	24	22	6	20	23	3	-	-	-	-	-	-	-	-
Callahan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	22	34	12	15	16	32	16
Manning	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	22	22	0	8	10	14	4
Hiatt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	18	30	12	15	26	32	6
All Schools	197	18	44	26	178	18	38	20	179	22	30	8	132	22	38	16	130	20	36	16	57	22	30	8	41	16	28	12

BEST COPY AVAILABLE

A P P E N D I X D

Self-Anchoring Attitude Scale

PRE-TEST INSTRUCTIONS

INSTRUCTIONS FOR THE ADMINISTRATION OF SAAS: SELF-ANCHORING ATTITUDE SCALE (TOWARD LEARNING)

INTRODUCTION

The Self-Anchoring Attitude Scale (Toward Learning) is an inventory designed to assess attitudes toward learning of individuals in Grade 5 through adult. SAAS is unique in that each individual is asked to describe the end-points of the dimension under examination -- in this case attitude toward learning. This self-defined continuum is then used as a measuring device with no further verbal cues.

DIRECTIONS

Check that all students have a pencil or a pen and one blank sheet of paper. To get off to a good start, it is suggested to say something like this.

"Today I am going to ask you about students who like to learn and students who dislike to learn. I am interested in your ideas. This is not a test. There are no right or wrong answers.

Not all students are the same. You may feel that some enjoy learning more than others. You may know students who like to learn and students who do not like to learn. Without saying anything to each other, spend the next 3-5 minutes thinking of what you would say about students who like to learn. To help you remember your ideas, write them down on the sheet of paper in front of you."

Allow 3-5 minutes for the students to complete this. When you are satisfied that they are finished, ask them to spend the next few minutes thinking of what they would say about students who dislike to learn. They can use the other side of the paper to jot down their ideas.

When they are finished, distribute the SAAS form to each student with the "ladder" side showing. Ask them to write their ideas for "Students Who Like to Learn" at the top of the page in the space provided and their ideas for "Students Who Dislike to Learn" at the bottom of the page.

After all students have finished writing, say to the students:

*"At the left side of your paper is a picture of a ladder
Your description
of students who like to learn is located at the top of
the ladder and your description of students who dislike
to learn is at the bottom.*

You may be at the top of the ladder -- that is, a student who likes to learn. Or you may be at the very bottom of the ladder -- a student who dislikes to learn. Quite possibly you are somewhere in between those who like to learn and those who dislike to learn.

Take your pencil and mark an "X" on the rung of the ladder where you think you are right now."

When you are satisfied that all students have finished, ask them to write in their name, school, grade, and the day's date in the space provided above the ladder. Also, have them write in their name in the top right hand corner of the form in the space provided.

Collect all the SAAS forms.

POST-TEST INSTRUCTIONS

INSTRUCTIONS FOR THE POST-TEST ADMINISTRATION OF SAAS: SELF-ANCHORING ATTITUDE SCALE (TOWARD LEARNING)

INFORMATION ABOUT SAAS

The Self-Anchoring Attitude Scale (Toward Learning) is an inventory designed to assess attitudes toward learning of individuals in Grade 5 through adult. SAAS is unique in that each individual is asked to describe the end-points of the dimension under examination -- in this case attitude toward learning. This self-defined continuum is then used as a measuring device with no further verbal cues.

DIRECTIONS

Check that all students have a pencil. Return the green SAAS form to the student who is identified on the form. The student's "fall rating" (the ladder having the student's first rating) should not be returned.

After all students have their original copy of the green SAAS form, say to the students:

"Last fall you described students who liked to learn and wrote that at the top of the page. You, also, described students who disliked to learn and you wrote that at the bottom of the page.

Read these descriptions. You may be like the student at the top of the page -- you may be like the student at the bottom of the page -- or you may be somewhere in between those who like to learn and those who dislike to learn.

Take your pencil and mark a X on the rung of the ladder where you think you are right now.

If you would like to write more about students who like to learn or students who dislike to learn, please do so. Write those comments and today's date beside any comments you add.

When you are satisfied that all students have finished, ask them to write their name, school, grade and the day's date in the space provided above the ladder.

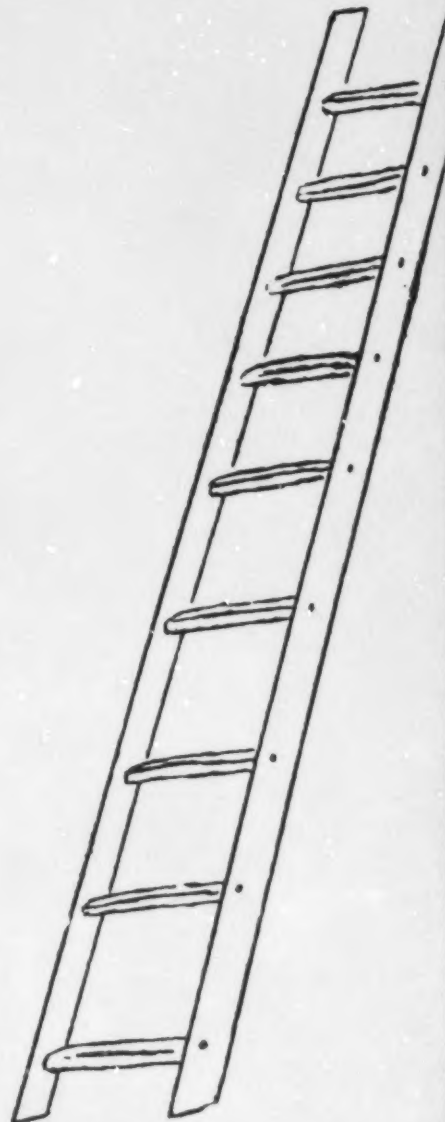
Collect all the SAAS forms.

NAME _____

SCHOOL _____

GRADE _____

DATE _____



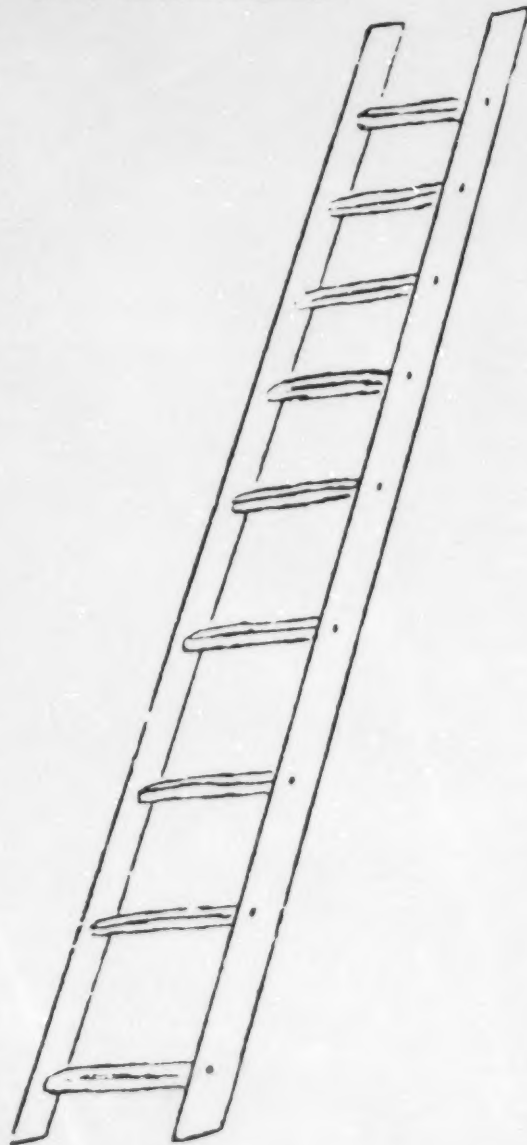
STUDENTS WHO LIKE TO LEARN

NAME _____

SCHOOL _____

GRADE _____

DATE _____



STUDENTS WHO DISLIKE TO LEARN